

## SEQUENCE LISTING

<110> MARECHAL, ERIC

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DOUCE, ROLAND

<120> SCREENING METHOD INVOLVING MGDG SYNTHASE

<130> 213993US0PCT

<140> 09/926,169

<141> 2000-03-17

<150> FR 99 03434

<151> 1999-03-19

<160> 11

<170> PatentIn version 3.1

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27

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<212> DNA  
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<213> Spinacia oleracea

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Asn Asn Ser Asn Gly Tyr Ser Ser Phe Ser Ser Asn Ser Val His Phe  
35 40 45

Gly Gly Leu Ala Thr Gln Asn Arg Tyr Lys Phe Val Asn Ser Leu Ser  
50 55 60

Phe Ser Lys Glu Gly Ser Asn Leu Lys Arg Ile Leu Ser Asp Phe Asn  
65 70 75 80

Arg Val Ile Arg Leu His Cys Asp Arg Ile Pro Leu Gly Phe Ser Ser  
85 90 95

Ile Gly Leu Asn Ser Gly Glu Ser Asn Gly Val Ser Asp Asn Gly His  
100 105 110

Gly Val Leu Glu Asp Val Arg Val Pro Val Asn Ala Val Glu Pro Glu  
115 120 125

Ser Pro Lys Arg Val Leu Ile Leu Met Ser Asp Thr Gly Gly His  
130 135 140

Arg Ala Ser Ala Glu Ala Ile Lys Ala Ala Phe Asn Glu Glu Phe Gly  
145 150 155 160

Asp Asp Tyr Gln Val Phe Val Thr Asp Leu Trp Ser Glu His Thr Pro  
165 170 175

Trp Pro Phe Asn Gln Leu Pro Arg Ser Tyr Asn Phe Leu Val Lys His  
180 185 190

Gly Pro Leu Trp Lys Met Met Tyr Tyr Gly Thr Ser Pro Arg Val Ile  
195 200 205

His Gln Ser Asn Phe Ala Ala Thr Ser Val Phe Ile Ala Arg Glu Val  
210 215 220

Ala Arg Gly Leu Met Lys Tyr Gln Pro Asp Ile Ile Ile Ser Val His  
225 230 235 240

Pro Leu Met Gln His Val Pro Leu Arg Ile Leu Arg Gly Arg Gly Leu  
245 250 255

Leu Glu Lys Ile Val Phe Thr Thr Val Val Thr Asp Leu Ser Thr Cys  
260 265 270

His Pro Thr Trp Phe His Lys Leu Val Thr Arg Cys Tyr Cys Pro Ser  
275 280 285

Asn Glu Val Ala Lys Arg Ala Thr Lys Ala Gly Leu Gln Pro Ser Gln  
290 295 300

Ile Lys Val Tyr Gly Leu Pro Val Arg Pro Ser Phe Val Arg Ser Val  
305 310 315 320

Arg Pro Lys Asn Glu Leu Arg Lys Glu Leu Gly Met Asp Glu His Leu  
325 330 335

Pro Ala Val Leu Leu Met Gly Gly Glu Gly Met Gly Pro Ile Glu  
340 345 350

Ala Thr Ala Arg Ala Leu Gly Asn Ala Leu Tyr Asp Ala Asn Leu Gly  
355 360 365

Glu Pro Thr Gly Gln Leu Leu Val Ile Cys Gly Arg Asn Lys Lys Leu  
370 375 380

Ala Gly Lys Leu Ser Ser Ile Asp Trp Lys Ile Pro Val Gln Val Lys  
385 390 395 400

Gly Phe Val Thr Lys Ile Glu Glu Cys Met Gly Ala Cys Asp Cys Ile  
405 410 415

Ile Thr Lys Ala Gly Pro Gly Thr Ile Ala Glu Ala Met Ile Arg Gly  
420 425 430

Leu Pro Ile Ile Leu Asn Asp Tyr Ile Ala Gly Gln Glu Ala Gly Asn  
435 440 445

Val Pro Tyr Val Ile Glu Asn Gly Ile Gly Lys Tyr Leu Lys Ser Pro  
450 455 460

Lys Glu Ile Ala Lys Thr Val Ser Gln Trp Phe Gly Pro Lys Ala Asn  
465 470 475 480

Glu Leu Gln Ile Met Ser Gln Asn Ala Leu Lys His Ala Arg Pro Asp  
485 490 495

Ala Val Phe Lys Ile Val His Asp Leu Asp Glu Leu Val Arg Gln Lys  
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Ile Phe Val Arg Gln Tyr Ser Cys Ala Ala  
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<210> 9

<211> 525

<212> PRT

<213> Cucumis sativa

<400> 9

Met Arg Asn Pro Ser Thr Val Val Gln Glu Asn Gly Ser Val Ser Asp  
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Phe Ile Ser Gln Leu Gly Tyr Phe Ala Phe Ser Ser Arg Phe Leu Asn  
20 25 30

Leu Asn Ser Glu Gly Cys Ser Gly Ser Ser Ser His Ser Leu Tyr Leu  
35 40 45

Asn Gly Phe Glu Asn Tyr Arg Cys Val Lys Arg Pro Pro Arg Ser Gly  
50 55 60

Ala Ser Leu Ser Leu Ser Ser Arg Gly Ser Ser Ser Leu Arg Arg Phe  
65 70 75 80

Val Asn Glu Phe Asn Asn Val Ile Lys Phe His Cys His Lys Pro Pro  
85 90 95

Leu Gly Phe Ala Ser Leu Gly Gly Val Ser Asp Glu Thr Asn Gly Ile  
100 105 110

Arg Asp Asp Gly Phe Gly Val Ser Gln Asp Gly Ala Leu Pro Leu Asn  
115 120 125

Lys Ile Glu Ala Glu Asn Pro Lys Arg Val Leu Ile Leu Met Ser Asp  
130 135 140

Th~~9~~ Gly Gly Gly His Arg Ala Ser Ala Glu Ala Ile Lys Ala Ala Phe  
14~~9~~ 150 155 160

Asp~~9~~ Glu Glu Phe Gly Asn Asn Tyr Gln Val Phe Ile Thr Asp Leu Trp  
165 170 175

Th~~9~~ Asp His Thr Pro Trp Pro Phe Asn Gln Leu Pro Arg Ser Tyr Asn  
180 185 190

Phe~~9~~ Leu Val Lys His Gly Thr Leu Trp Lys Met Thr Tyr Tyr Val Thr  
195 200 205

Ala Pro Lys Val Ile His Gln Ser Asn Phe Ala Ala Thr Ser Thr Phe  
210 215 220

Ile Ala Arg Glu Val Ala Lys Gly Leu Met Lys Tyr Arg Pro Asp Ile  
225 230 235 240

Ile Ile Ser Val His Pro Leu Met Gln His Val Pro Ile Arg Ile Leu  
245 250 255

Arg Ser Lys Gly Leu Leu Asn Lys Ile Val Phe Thr Thr Val Val Thr  
260 265 270

Asp Leu Ser Thr Cys His Pro Thr Trp Phe His Lys Leu Val Thr Arg  
275 280 285

Cys Tyr Cys Pro Ser Thr Glu Val Ala Lys Arg Ala Leu Thr Ala Gly  
290 295 300

Leu Gln Pro Ser Lys Leu Lys Val Phe Gly Leu Pro Val Arg Pro Ser  
305 310 315 320

Phe Val Lys Pro Ile Arg Pro Lys Ile Glu Leu Arg Lys Glu Leu Gly  
325 330 335

Met Asp Glu Asn Leu Pro Ala Val Leu Leu Met Gly Gly Glu Gly  
340 345 350

Met Gly Pro Ile Glu Ala Thr Ala Lys Ala Leu Ser Lys Ala Leu Tyr  
355 360 365

Asp Glu Asn His Gly Glu Pro Ile Gly Gln Val Leu Val Ile Cys Gly  
370 375 380

His Asn Lys Lys Leu Ala Gly Arg Leu Arg Ser Ile Asp Trp Lys Val  
385 390 395 400

Pro Val Gln Val Lys Gly Phe Val Thr Lys Met Glu Glu Cys Met Gly  
405 410 415

Ala Cys Asp Cys Ile Ile Thr Lys Ala Gly Pro Gly Thr Ile Ala Glu  
420 425 430

Ala Met Ile Arg Gly Leu Pro Ile Ile Leu Asn Asp Tyr Ile Ala Gly  
435 440 445

Gln Glu Ala Gly Asn Val Pro Tyr Val Val Glu Asn Gly Cys Gly Lys  
450 455 460

Phe Ser Lys Ser Pro Lys Glu Ile Ala Asn Ile Val Ala Lys Trp Phe  
465 470 475 480

Gly Pro Lys Ala Asp Glu Leu Leu Ile Met Ser Gln Asn Ala Leu Arg  
485 490 495

Leu Ala Arg Pro Asp Ala Val Phe Lys Ile Val His Asp Leu His Glu  
500 505 510

Leu Val Lys Gln Arg Ser Phe Val Pro Gln Tyr Ser Gly  
515 520 525

<210> 10

<211> 533

<212> PRT

<213> *Arabidopsis thaliana*

Met Gln Asn Pro Ser Thr Val Thr Gln Glu Ser Ala Ala Pro Val Phe  
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Asp Phe Phe Pro Arg Leu Arg Gly Leu Thr Ser Arg Asn Arg Ser Pro  
20 25 30

Cys Ser Asn Ser Asp Gly Tyr Ala Leu Ser Ser Asn Ala Leu Tyr  
35 40 45

Phe Asn Gly Phe Arg Thr Leu Pro Ser Arg Arg Met Gly Lys Thr Leu  
50 55 60

Ala Ser Leu Ser Phe Asn Thr Lys Ser Ser Ala Gly Ser Ser Leu Arg  
65 70 75 80

Arg Phe Ile Ser Asp Phe Asn Ser Phe Ile Arg Phe His Cys Asp Lys  
85 90 95

Val Val Pro Glu Ser Phe Ala Ser Val Gly Gly Val Gly Leu Ser Ser  
100 105 110

Asp Glu Asn Gly Ile Arg Glu Asn Gly Thr Gly Gly Val Leu Gly Glu  
115 120 125

Glu Gly Leu Pro Leu Asn Gly Val Glu Ala Asp Arg Pro Lys Lys Val  
130 135 140

Leu Ile Leu Met Ser Asp Thr Gly Gly Gly His Arg Ala Ser Ala Glu  
145 150 155 160

Ala Ile Arg Ala Ala Phe Asn Gln Glu Phe Gly Asp Glu Tyr Gln Val  
165 170 175

Phe Ile Thr Asp Leu Trp Thr Asp His Thr Pro Trp Pro Phe Asn Gln  
180 185 190

Leu Pro Arg Ser Tyr Asn Phe Leu Val Lys His Gly Thr Leu Trp Lys  
195 200 205

Met Thr Tyr Tyr Gly Thr Ser Pro Arg Ile Val His Gln Ser Asn Phe  
210 215 220

Ala Ala Thr Ser Thr Phe Ile Ala Arg Glu Ile Ala Gln Gly Leu Met  
225 230 235 240

Lys Tyr Gln Pro Asp Ile Ile Ser Val His Pro Leu Met Gln His  
245 250 255

Val Pro Leu Arg Val Leu Arg Ser Lys Gly Leu Leu Lys Lys Ile Val  
260 265 270

Phe Thr Thr Val Ile Thr Asp Leu Ser Thr Cys His Pro Thr Trp Phe  
275 280 285

His Lys Leu Val Thr Arg Cys Tyr Cys Pro Ser Thr Glu Val Ala Lys  
290 295 300

Arg Ala Gln Lys Ala Gly Leu Glu Thr Ser Gln Ile Lys Val Tyr Gly  
305 310 315 320

Leu Pro Val Arg Pro Ser Phe Val Lys Pro Val Arg Pro Lys Val Glu  
325 330 335

Leu Arg Arg Glu Leu Gly Met Asp Glu Asn Leu Pro Ala Val Leu Leu  
340 345 350

Met Gly Gly Gly Glu Gly Met Gly Pro Ile Glu Ala Thr Ala Arg Ala  
355 360 365

Leu Ala Asp Ala Leu Tyr Asp Lys Asn Leu Gly Glu Ala Val Gly Gln  
370 375 380

Val Leu Ile Ile Cys Gly Arg Asn Lys Lys Leu Gln Ser Lys Leu Ser  
385 390 395 400

Ser Leu Asp Trp Lys Ile Pro Val Gln Val Lys Gly Phe Ile Thr Lys  
395 405 410 415

Met Glu Glu Cys Met Gly Ala Cys Asp Cys Ile Ile Thr Lys Ala Gly  
420 425 430

Pro Gly Thr Ile Ala Glu Ala Met Ile Arg Gly Leu Pro Ile Ile Leu  
435 440 445

Asn Gly Tyr Ile Ala Gly Gln Glu Ala Gly Asn Val Pro Tyr Val Val  
450 455 460

Glu Asn Gly Cys Gly Lys Phe Ser Lys Ser Pro Lys Glu Ile Ser Lys  
465 470 475 480

Ile Val Ala Asp Trp Phe Gly Pro Ala Ser Lys Glu Leu Glu Ile Met  
485 490 495

Ser Gln Asn Ala Leu Arg Leu Ala Lys Pro Glu Ala Val Phe Lys Ile  
500 505 510

Val His Asp Met His Glu Leu Val Arg Lys Lys Asn Ser Leu Pro Gln  
515 520 525

Leu Ser Cys Thr Ala  
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<212> PRT

<213> *Arabidopsis thaliana*

<400> 11

Met Ala Thr Thr Val Met Ala Leu Ala Glu Lys Val Leu Glu Arg Val  
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Tyr Gly Thr Ser Lys Ser Ala Val Ser Val Thr Ser Gly Asp Gly Glu  
20 25 30

Lys Thr His Arg His Thr His His Ile His Arg Ile Lys Ser Tyr  
35 40 45

Asp Asp Ile Asp Glu Asp Glu Ser Ser Leu Glu Leu Ile Gln Ile Gly  
50 55 60

Ala Glu Arg Thr Lys Asn Val Leu Ile Leu Met Ser Asp Thr Gly Gly  
65 70 75 80

Gly His Arg Ala Ser Ala Glu Ala Ile Arg Asp Ala Phe Lys Ile Glu  
85 90 95

Phe Gly Asp Lys Tyr Arg Val Ile Val Lys Asp Val Trp Lys Glu Tyr  
100 105 110

Thr Gly Trp Pro Leu Asn Asp Met Glu Arg Ser Tyr Lys Phe Met Val  
115 120 125

Lys His Val Gln Leu Trp Lys Val Ala Phe His Ser Thr Ser Pro Lys  
130 135 140

Trp Ile His Ser Cys Tyr Leu Ala Ala Ile Ala Tyr Tyr Ala Lys  
145 150 155 160

Glu Val Glu Ala Gly Leu Met Glu Tyr Lys Pro Glu Ile Ile Ile Ser  
165 170 175

Val His Pro Leu Met Gln His Ile Pro Leu Trp Val Leu Lys Trp Gln  
180 185 190

Glu Leu Gln Lys Arg Val Leu Phe Val Thr Val Ile Thr Asp Leu Asn  
195 200 205

Thr Cys His Pro Thr Trp Phe His Pro Gly Val Asn Arg Cys Tyr Cys  
210 215 220

Pro Ser Gln Glu Val Ala Lys Arg Ala Leu Phe Asp Gly Leu Asp Glu  
225 230 235 240

Ser Gln Val Arg Val Phe Gly Leu Pro Val Arg Pro Ser Phe Ala Arg  
245 250 255

Ala Val Leu Val Lys Asp Asp Leu Arg Lys Glu Leu Glu Met Asp Gln  
260 265 270

Asp Leu Arg Ala Val Leu Leu Met Gly Gly Gly Glu Gly Met Gly Pro  
275 280 285

Val Lys Glu Thr Ala Lys Ala Leu Glu Glu Phe Leu Tyr Asp Lys Glu  
290 295 300

Asn Arg Lys Pro Ile Gly Gln Met Val Val Ile Cys Gly Arg Asn Lys  
305 310 315 320

Lys Leu Ala Ser Ala Leu Glu Ala Ile Asp Trp Lys Ile Pro Val Lys  
325 330 335

Val Arg Gly Phe Glu Thr Gln Met Glu Lys Trp Met Gly Ala Cys Asp  
340 345 350

Cys Ile Ile Thr Lys Ala Gly Pro Gly Thr Ile Ala Glu Ser Leu Ile  
355 360 365

Arg Ser Leu Pro Ile Ile Leu Asn Asp Tyr Ile Pro Gly Gln Glu Lys  
370 375 380

Gly Asn Val Pro Tyr Val Val Glu Asn Gly Ala Gly Val Phe Thr Arg  
385 390 395 400

Ser Pro Lys Glu Thr Ala Arg Ile Val Gly Glu Trp Phe Ser Thr Lys  
405 410 415

Thr Asp Glu Leu Glu Gln Thr Ser Asp Asn Ala Arg Lys Leu Ala Gln  
420 425 430

Pro Glu Ala Val Phe Asp Ile Val Lys Asp Ile Asp Glu Leu Ser Glu  
435 440 445

Gln Arg Gly Pro Leu Ala Ser Val Ser Tyr Asn Leu Thr Ser Ser Phe  
450 455 460

Ala Ser Leu Val  
465